THE VETERINARY RECORD

A Weekly Journal for the Profession.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

No. 1508. JUNE 2, 1917. VOL. XXIX.

OWNERS AND THE PROFESSION.

Owners not infrequently accuse us of trying to unduly inflate our bills. In some cases the charge is just, as it is as regards some individual members of every profession mainly paid on piece-work lines—medicine and the law, for example. But, if any owner has this idea as regards the profession as a whole, it would be well to teach him something of our record. It should not be difficult to show that collectively we have often taken action that diminished our own incomes, when we were satisfied that it was to the public advantage.

Scheduled disease is an example. Many members can remember the time when we were free to treat diseases now scheduled, and did so. Occasionally our work was useful to owners, and it was certainly remunerative to ourselves; but it was as certainly detrimental to the national interest that such diseases should be left in private hands. Recognizing that truth, the profession unhesitatingly endorsed the scheduling of disease, well knowing that in doing so it to some extent lessened the incomes of many of its members.

There are other diseases, not scheduled, regarding which we have taken much the same line. It is not a very lucrative business for a veterinary surgeon to diagnose Johne's disease and advise the owner as to the necessary measures. It was more profitable to us to treat cases of chronic diarrhœa till we satisfied ourselves that it was incurable, or the owners grew tired of treatment; and there is no doubt at all that practitioners earned not a little money in this way before Johne's disease was recognised. The moment it was recognised, and we were able to differentiate it, we acted on our knowledge to the benefit of owners.

Again, not a few of our modern therapeutic advances have tended to decrease the emoluments of practice. Everyone who remembers the amount of medicine we once profitably lavished upon cases of pneumonia, and compares it with the treatment of to-day, will appreciate this; and pneumonia is not the only example which can be given.

After all, the real *raison d'être* of any profession is that it performs work of public utility, and regulates and modifies its activities with an eye to the public good rather than to its own advantage. Every profession holds some members who forget this, and who become as parasites on the community rather than workers for it; and ours is no exception to the rule. But, if we take the veterinary profession as a whole, and compare its record with those of other professions, we shall find that it has recognised its public responsibilities as readily as any, and discharged them as unselfishly.

THE PRESENCE OF PSOROPTES IN THE EARS OF SHEEP.

By Prof. J. F. CRAIG, Dublin.

In the *Bulletin de la Société Centrale de Médecine Vétérinaire*, Tome xcii., Nos. 3 and 4, there appears an interesting and important article by Henry, on "Otacariasis and the Prophylaxis of Psoroptic Mange." From his observations and the records of others he concludes that in the majority of species the ears form the most favourable medium for the development and multiplication of psoroptes. There they set up an otacariasis which is the origin of new outbreaks of psoroptic mange, and which may be the cause of relapses after treatment.

As evidence in this connexion he records some observations he made on 32 cachectic sheep which had been condemned as unfit for food. He examined these animals before slaughter and found in them no evidence of sheep scab. In the ears of 15 of them he was able to demonstrate the presence of psoroptes. These psoroptes presented no differences from the parasites of sheep scab.

He also refers to the discovery by Rouband and van Saceghem of otacariasis in sheep at Zambi, Belgian Congo. They describe the disease as having the same clinical characters as in goats, and the parasites as being of the same variety as psoroptes communis v. capræ.

In view of the important bearing that the question has on the treatment and prophylaxis of sheep scab and the need for confirmation of the conclusions drawn by Henry, I have made a systematic examination of the ears of sheep for psoroptes. Up to the present I have examined material from the ears of 62 animals. The material examined is obtained chiefly from the inner side of the concha as far down as the narrow opening into the auditory meatus. In the latter very little deposit is usually found. This deposit is soft, and yellow in colour, varies considerably in amount, and appears in masses or patches which can readily be scraped off from the skin with a knife or spatula. It consists of cerumen and epidermal scales in which vegetable fibres, the seeds of various grains, and particles of sand may be scattered.

Of these 62 sheep, 49 had been slaughtered in the the public abattoir in Dublin in prime condition and showed no evidence of sheep scab. In these no psoroptes were found in the ears. But in 15 of them various other acari, chiefly Tyroglyphus, and larvæ of Ixodes were demonstrated.

The remaining 13 were from a flock of sheep affected with sheep scab. In three of these, psoroptes were found in the scrapings from the ears,

and were identical with the parasites on the body Two of these sheep were among the worst affected with sheep scab; the third was an earlier case. The parasites identified in each of the scrapings were: for No. 1, four ovigerous females; one pubescent female; one larva, and four eggs: No. 2, one pubescent female; one male, and one larva: No. 3, one ovigerous female.

These observations do not support the contention that the parasites of sheep scab have the ears as their favourite hunting ground, from which they sometimes emerge to attack the body. They do, however, demonstrate that psoroptes may sometimes pass into the inner side of the ears of sheep affected with sheep scab. The number of parasites found may seem very small, but it has to be remembered that one ovigerous female psoropt is sufficient to set up the disease. In the ears the psoroptes are well protected against the actions of dips as they are often applied. When they take up this position, they may account for some of the cases of recurrences of sheep scab noted after restrictions have been raised.

It is therefore important that in the dipping of sheep affected with sheep scab care should be taken that the dip should reach the inner side of the ear. Indeed it should be a routine practice to pour a little dip into both ears of sheep after dipping. This practice should be adopted not only with sheep affected with sheep scab, but also with those in-contacts showing no symptoms, as well as with newly purchased sheep which are dipped prior to their introduction to the flock.

Henry especially recommends the use of a two to three per cent. warm water emulsion of cresyl as the best "psoropticide;" a little of this emulsion is poured into each. The psoroptes are almost instantly destroyed when in contact with the fluid.

I am indebted for much assistance in the examination of the sheep and the scrapings from the ears to Mr. R. Mettam, Class D student, R.V.C.I.

STRANGLES WITHOUT RISE OF TEMPERATURE.

By J. J. Aveston, M.R.C.V.S., Bath.

I was recently consulted about a yearling hunter colt, which showed symptoms of typical strangles—nasal catarrah, swellings in the intermaxillary space, etc.—but no rise in temperature. This animal went through a subacute form of typical strangles, several abscesses appeared and burst, and for two days there was little or no appetite; the attack lasted some fourteen or fifteen days.

The, to me, unusual features in this case were:—

1. At no time, even during abscess formation, was there any rise in temperature.

2. Although four other yearlings were in close association during the whole period of attack, none were attacked by the disease, though at times eating out of the same manger.

Isolation was suggested, but owner thought that as the colt had been ill for some days before my visit it was too late.

Some years ago I saw a very similar case; a three-year-old cart colt was suffering from typical strangles in a badly constructed stable, with deficient ventilation and drainage, in which were several other young horses, in this instance likewise I never detected any rise in animal's temperature, and neither of the other animals showed any signs of the disease.

I cannot help thinking that strangles without fever is not very infectious.

Aspergillosis in Ostrich Chicks.

J. Walker has published, in the third and fourth reports of the Director of Veterinary Research of the Union of South Africa (1915) an account of this condition, which is also known in South Africa by the synonyms of chick fever and yellow liver. The disease amongst ostrich chicks reared on some farms in South Africa sometimes causes a mortality as high as 70 per cent. It has thus assumed a considerable economic importance, inasmuch as prices as high as £200 to £300 may be paid for adults, and £30 for three-month-old chicks.

In preliminary observations the author discovered that various moulds, notably of the aspergillus type, were found in the lesions of chick fever, and in exposure experiments were capable of transmitting the disease.

On a plan outlined by the Director of Veterinary Research of the Union of South Africa, the author carried out further detailed investigations into the nature of the disease, the results of which are summarised in the following conclusions;—

"1. *Aspergillus fumigatus* appears in the ostrich, more particularly in the ostrich chick, from a few days to about three to four weeks after hatching, and is responsible for the disease in ostrich chicks commonly known as 'yellow liver, or chick fever.'

2. *Aspergillus fumigatus* is the commoner and more pathogenic species.

3. Outbreaks usually appear in an epidemic form and are more prevalent amongst chicks artificially hatched and reared.

4. *Aspergillus fumigatus* infection occurs in the air chamber of the egg, and is common in straw and other vegetable matter, and in soil which has been fertilized with decomposed vegetable matter, such as stable manure, etc.

5. Infected eggs are the chief source of infection of incubators, the liberation of *Aspergillus fumigatus* from the air chamber taking place either at the time of hatching or when infected eggs are opened in the incubators.

6. Aspergillosis is contracted naturally from:—

(*a*) Infected eggs just previous to, or at time of hatching.

(*b*) Infected bedding used in chicks' sleeping boxes.

(*c*) Infected incubators.

7. Aspergillosis may be transmitted artificially by inhalation and ingestion, and intravenous inoculation of cultures.

8. Aspergillosis infection occurs chiefly through the respiratory tract, the lungs and air-sacs being the seat of infection.

9. Infection may occur through the digestive tract.

10. *Aspergillus fumigatus* is transmitted from infected to clean eggs through the unbroken shell.

11. The contents of unbroken eggs may escape through the intact shell. In such cases the bacteria which exist in the contents are probably a source of infection of eggs, more particularly those in contact.

12. Spores of *Aspergillus fumigatus* vegetate after passing through the intestinal canal.

Prevention consists in the use of:—

(*a*) Non-infected incubators.

(*b*) Non-infected bedding in the chicks' sleeping boxes.

(*c*) Non-infected eggs for incubation purposes.

Boiling water has given satisfactory results in the sterilisation of cultures of *Aspergillus fumigatus*. (*Tropical Veterinary Bulletin*).

ABSTRACTS FROM FOREIGN JOURNALS.

Maxillary Osteo-Sarcoma?

C. M. Herrerce, a Spanish Army Veterinary Surgeon, records the case of an artillery horse, which presented a tumour on the left outer aspect of the inferior maxilla. This tumour measured about twelve centimetres long by nine centimetres broad, was inserted upon the inferior edge of the maxilla, and was about four centimetres from the molar arcade.

The tumour was submitted to ordinary caustic-resolvent treatment without obtaining the least benefit. The treatment was prolonged with the object of avoiding a surgical operation, which the anatomical situation of the tumour rendered difficult; but, as no success was obtained, extirpation was decided upon.

The horse was placed on Vinsot's operating table, the region was shaved and disinfected, and local anæthesia was induced by cocaine and adrenalin. An incision was then made along the long axis of the tumour, and the skin was dissected on both sides until the base of the growth was reached. A thread, passed through the middle of the tumour and knotted at the ends, greatly facilitated the enucleation. At its inferior aspect the tumour was intimately connected with the external maxillary and lingual arteries and veins, which it was necessary to ligature. Stenson's duct, which turned round the inferior border of the tumour, was carefully dissected away from it. At the anterior part, the tumour was extirpated with great facility.

The edges of the wound were equalised, the superfluous pieces of skin were resected, the wound was sutured, and a drainage tube and a protective dressing were applied.

For nine days after the operation the wound suppurated freely. Ordinary after-treatment arrested this; and, seventeen days after the operation, the wound had cicatrised.

The extirpated tumour, which weighed 167 grammes, was of soft consistence; but some parts appeared ossified. Cut through the middle, its sectioned surface was yellowish-grey in colour, and showed large alveoli, which contained an opaque red liquid.

A brief microscopical examination revealed a soft and abundant fundamental substance, and two classes of cells distributed in zones corresponding to the different degrees of hardness observed upon the sectioned surface. The first were rounded or oval embryonic cells, with some larger polynuclear ones. The second was composed of cells of more advanced organisation, firm in consistence, not juicy, and apparently in process of calcification. The last were very abundant, forming almost the whole of the substance towards the insertions of the tumour into the maxillary bone. These characters, in the author's view, justify the classification of the tumour which he has adopted—*viz.*, "Osteo-sarcoma," with a mark of interrogation.—(*Revista de Veterinaria Militar.*) W. R. C.

Annual Report of the Camel Specialist, 1915–16, H. E. Cross, I.C.V.D., M.R.C.V.S. [Abstract.]

This report again brings out the fact that there is much concerning camel diseases which is still undefined. Several pages of the report are given to mortality details of 12 camel corps, and 3 groups of local transport: a table gives 50 causes of death, and of a total of 2470, 1325 are under surra, and of these, 709 are returned from one corps of an average strength of 836, and 330 from another of 1006: other of these corps return less than 1% deaths from surra, and from notes in the report on an outbreak at Chakdara it is evident that local conditions, especially as to prevalence of flies (tabanidæ) may account for large variations in the incidence. The next high total is 312, out of the remaining 1145, under the heading of "unknown," and as the mortality returns are sent in by the corps a portion of these mean—insufficiently reported. Then follow 190 by debility and old age: 110 colic: 109 lung diseases. Accident 32, Fall 56, Fracture 19, Wounds 5, Overstrained 4, shot 5. Poisonous shrub 35, Snake-bite 20. From these figures it may be judged that causes of death by disease apart from surra come under few headings; there remain abscess 21, Brain disease 10, diarrhœa 22, enteritis, fever, influenza, each 13, paralysis 21, Kapauli 14, rinderpest 16, Sore throat 13, Stomach staggers 12, Camel pox 10.

"As many of the Corps are on duty overseas, only the deaths occurring while they were in India have been given in the mortality statements.

Too much reliance cannot be placed on the mortality returns, they are compiled from the statements of the camelmen, and it is only very seldom that the Veterinary Assistants of the Corps have any opportunity of verifying the cause of death or making post-mortems. The large increase of surra is due to Camel Corps being sent to district where biting flies are prevalent. When camels, amongst which cases of surra exist, are sent to districts where biting flies are prevalent, surra is bound to spread. Deaths attributed to brain disease, stomach staggers, debility, kapauli (pus in sinuses) are all probably due to surra. Dysentery and enteritis are probably due to the irritant medicines given by the camelmen to their camels, or to anthrax.

I have been unable to obtain evidence to substantiate the statement made by many people, that the camel is

a delicate animal; on the contrary, in my opinion he is a very hardy animal, if worked in the climate he is accustomed to and properly fed. Like any other animal, if hard-worked and given short rations, he will soon go to pieces. Moreover, the camel, being a ruminant, must have a bulky diet; the substitution of a grain ration for a straw ration is altogether wrong. There is room for improvement in the feeding of military camels and the treatment of sick camels. No medicines should be administered except by the Veterinary Duffadar. Camelmen should not be allowed to fire their camels for every ailment.

The technique of blood examination, in some corps, is very bad. Indian Officers, Kot Duffadars and Naiks should not be allowed to have anything to do with blood examination; this is the work of the Veterinary Duffadar. If he has not had much experience of microscopical work he can always be sent to this office for training.

Anti-fly emulsion experiments. It is well-known that surra is spread from camel to camel by blood-sucking flies. If healthy camels have to pass through an area where surra is known to exist and blood-sucking flies are prevalent, the chances of healthy camels marching through the area without contracting the disease are very remote. If, however, the healthy camels can be protected against the attacks of blood-sucking flies, they should be able to march through the area without fear of contracting the disease. Last year the repellent action of emulsions of kerosine oil, chirpine oil, taramira oil and asafœtida solutions was noted.

Experiments were carried out this year with:—(1) Creosol emulsion (creosol, pix liquida, soft soap, and water; (2) Jensen's emulsion (kerosine oil, powdered naphthaline, soap, and water); (3) Citronella oil; (4) Aniseed oil; (5) Cod liver oil; (6) Castor oil.

(1) Three pints of this emulsion are scarcely sufficient. After 12 to 13 hours the emulsion did not prevent the Tabanidæ from biting. As soon as the emulsion has dried on the skin it does not appear to have the slightest efficacy against the attacks of Tabanidæ.

(2) Jensen's emulsion prevents Tabanidæ from biting for twelve hours. At the time that these experiments were carried out camels had little or no hair, and the sun was very powerful. The emulsion caused severe blistering of the skin.

(3) Citronella oil prevents Tabanidæ and Stomoxys from attacking for a few hours, but it has no repellent action after 17 hours.

(4) Aniseed oil has no repellent action against Tabanidæ 2½ hours after application. Tabanidæ appeared on the sprayed and unsprayed camels at the same time. It has a slight repellent action against Stomoxys; the protection is so short that the oil cannot be considered of any practical value. The application of only one pint causes great restlessness in the camel.

(5) The application of Cod liver oil does not prevent Stomoxys and Tabanidæ attacking camels. Three hours after the application of the oil Tabanidæ settled on the smeared and unsmeared camels.

(6) One pint of Castor oil smeared on a camel has practically no effect in preventing Tabanidæ and Stomoxys attacking the camel. Three pints of Castor oil smeared on a camel prevents Tabanidæ from biting for only one hour. Four pints of Castor oil when smeared on a camel prevents Tabanidæ and Stomoxys from biting for three days. From the fourth to the sixth day Tabanidæ were far less numerous on the smeared camel than on the unsmeared.

It is possible that Castor oil may have a harmful effect upon the skin, as it is liable, when exposed to the air, to thicken and form a varnish-like film. No harmful effect has, however, yet been observed.

Castor oil is of no practical value on account of the cost. Smearing a camel with four pints costs over Rs. 2-8-0.

In order to determine whether camels are susceptible to Black quarter three camels were inoculated with 5 c.c. of emulsion of black quarter muscle intravenously; also one young buffalo and one calf to serve as controls.

Two of the camels, a male and female, one year old, died with typical symptoms of black quarter 38 hours after inoculation. The other camel, a male, seven years old, died with typical symptoms 63 hours after inoculation.

The buffalo, male, three months old, died 23 hours after inoculation; and the calf, male, nine months old, 45 hours after.

The symptoms of black quarter in camels are identical with those in bovines.

To determine whether camels are susceptible to Hæmorrhagic septicæmia, a disease which in India causes a very large number of deaths amongst bovines, two camels were inoculated with 2 c.c. of culture subcutaneously.

Camel, male, one year old: ten hours after inoculation the temperature rose to 104.8. Thirty-four hours after inoculation there was a slight swelling—hot and painful; this gradually subsided, fæces continued normal and the camel continued to feed well. Twenty-four hours after inoculation the temperature became normal and continued so till the seventh day, after which no further observations were made, the camel being in a normal state of health.

Camel, male, seven years old: thirty-four hours after inoculation showed a very slight rise in temperature. Forty-eight hours after inoculation slight swelling on the seat of inoculation, this swelling disappeared after two days. The camel fed well the whole time. He was kept under observation for seven days.

The temperature of a camel in a normal state of health varies considerably: from 97° in the morning to 101° or over in the evening.

Two controls—rabbits—inoculated with 0.5 c.c. of H.S. culture subcutaneously, died in 22 hours.

Two controls—calves—inoculated with 2 c.c. of H.S. culture subcutaneously: one died in 49 hours, the other in 28 hours.

Feeding experiments. Very little is at present recorded concerning the feeding of camels. The private owned camel has to depend largely on browsing, this is supplemented at times by missa or moth bhusa and, when available, by green fodder, such as taramira-green, moth-green, gram, etc. As a rule the private owned camel is given no grain.

Seven camels (that were under observation for the course that surra runs in the camel) were allowed to browse during the day, and the quantity of green taramira (in addition to 6 lb. of gram) that they ate during the night was carefully weighed. Of these seven, three averaged 61 lb. and four 70 lb. The browsing that they got during the day was of very poor quality. The experiment was carried out during the month of March (from 7th to 31st).

Of water taken, two of the seven had each, approximately, 1½ gall.: two 2 gall.: three 3 gall. One healthy camel that was working, and fed on bhoosa and gram, drank on an average 5 gall. of water a day. On two days that he was ridden 14 miles, he drank 9½ and 8 gall. of water, respectively.

The camels that were fed on green taramira were doing no work. Had they been working, the average amount of green taramira consumed would probably have been greater. In carrying out feeding experiments with green taramira, care must be taken that it is not fed to the camels when it is too bitter; otherwise the camels will eat only a few pounds. To ascertain the quantity of water drunk, camels must be trained to

drink water from a bucket. After the camel has drunk, the bucket must not be removed at once as the camel does not drink all he requires straight away; he drinks a certain amount, then stops for a short time, say five minutes, then starts drinking again, then stops again, and after a short time again drinks. He must be allowed plenty of time, and the bucket must not be removed till it is certain the camel has drunk as much as he wants.

Sore throat. Two cases of the disease were brought to my notice by Capt. May, Commandant of the 52nd Camel Corps, Jhelum. One of these cases I kept under observation.

I saw the camel in the afternoon shortly after he was taken ill. He presented the following symptoms:—Off feed and suspension of rumination, sitting down, no inclination to stand; slight swelling of the throat; neck stretched out on the ground, and evidently in pain; breathing slightly rapid; pulse full and slightly rapid, temperature 100.2; constipated; eyes dull; salivation and champing of the jaws; drunk a little water with difficulty, blood smears showed nothing abnormal.

The camel was placed in the shade, no medicine was administered, neither was the throat fomented nor liniments applied. Water and green wheat was placed in front of him.

Next morning there was very little change. On the following day he was much better. Kept his neck in normal position, showed very little pain in the region of throat, temperature and breathing were nearly normal, passed fæces, drank water, and had eaten some green wheat. The eyes were bright. He continued to improve: on the seventh day was put to light work.

Unfortunately it was not possible to inoculate a guinea pig with some blood from this camel. No material from animals that had died from this disease could be obtained.

Nothing is known of the disease: all that can be done is to treat the symptoms. A dose of Epsom salts, one to two lb. (according to the size of the animal) should be at once given. Fomentations may be applied to the throat and green fodder placed in front of the animal. The animal should be placed in the shade and left alone. On no account should the camel be worried by allowing the camelmen to force food down its throat. Camelmen fire the throat, and maintain that if this is not done the animal in every case dies.

Jhooling, or Jhoolak, is a contagious disease of camels manifesting itself in the formation of local tumours—hot and painful, of a fibrous character and terminating in suppuration and raw patches. The disease is widely distributed throughout the Punjab, it is not so common in the Lahore District as in the Jhelum and Rawalpindi Districts. It usually occurs in the cold weather.

Horses, cattle, buffaloes, dogs, guinea pigs and rabbits appear to be immune. Inoculations of parts of the Jhooling lesion into these animals does not produce the disease. When portions of the lesions are rubbed on the skin, whether the skin be scarified or not, no Jhooling lesion is produced in any of the above animals. Horses, buffaloes and cattle kept in contact with camels suffering from Jhooling did not contract the disease, but many healthy camels did. When portions of Jhooling lesions are rubbed on the scarified skin of a healthy camel the disease develops after a few days. In only one case did the disease develop when a portion of the Jhooling lesion was rubbed on the unscarified skin of a healthy camel.

The first symptom of the disease is a hot, hard, and painful swelling varying from one to three inches in diameter usually on the neck or hind quarters or on the testicle, though the lesion may occur in almost any part of the body. After a few days the swelling becomes very irritating, and if it is situated in any part of the body that the camel can reach with his teeth he will gnaw at it, leaving a raw wound. In all cases, after the lapse of some time, suppuration takes place, and finally the wound heals, leaving a small white spot, which lasts for several months. As a rule several lesions are found on every camel suffering from the disease and the camel loses condition.

The lesion may be excised; pure phenyle or carbolic acid applied, and the wound then treated as any ordinary wound, or (2) a blister of red iodide of mercury may be applied (this hastens the formation of pus)—the lesion should be opened up, pure phenyle or carbolic acid applied, and the wound then dressed with "black wash." The lesion often takes a considerable time to heal; "black wash" I have found gives good results when ordinary wound dressings fail. When the lesion has been opened up and thoroughly cleansed Socin's plaster often gives good results.

The tumour consists of fibrous tissue, finally undergoing suppuration. Examination of the pus reveals streptococci: no staphylococci have been observed. I have had no opportunity of making a post-mortem on camels suffering from jhooling, so am unable to state whether lesions occur in the internal organs.

Camelmen are well aware of the contagious nature of this disease. If they have a camel suffering from jhooling lesions in the neck, this camel is always placed first in the string of camels; whereas if the lesions are on the hind quarters the camel is tied last.

Should a case of jhooling occur amongst a number of camels, it should be at once isolated. The remaining camels should be divided up into lots and not allowed to mix. The disease spreads very rapidly and causes a great deal of trouble. No camel should be bought if small hard white spots are observed on the skin; they are undoubtedly healed up old jhooling lesions.

Rheumatism. Camels suffer a great deal from articular rheumatism. Though I have seen hundreds of camels suffering from articular rheumatism I have not so far observed any cases of muscular rheumatism. The disease is found in all parts of the Punjab, though certain districts appear to be worse than others, *e.g.*, Jullundur.

Improper feeding, cold and damp, if not the real causes, are certainly contributing causes. Camelmen state that if camels are fed on shisham leaves for any length of time they develop rheumatism. Undoubtedly camels kept in districts where shisham abounds do suffer a great deal from rheumatism, but where shisham trees thrive there is always a lot of water, and it is more than probable that the camels get rheumatism from the damp, cold ground.

When the camel suffering from rheumatism is made to get up and walk he suffers acute pain and moves as if suffering from sore feet. After he gets "warmed up" the symptoms pass off, except in cases of long standing. The joints of the fore-legs appear to be more affected than those of the hind-legs. The fetlock joints are often inflamed and swollen.

A dose of Mag. sulph., 1 to 2 lb., followed by small doses of Sod. bicarb. acts beneficially. Salicylates do not appear to give any relief; probably the doses given have not been sufficiently large. If several cases of rheumatism suddenly occur, the camp should be removed to some other site and as dry a place as possible selected.

Wail. This disease is common in the Bhakkar ilaqua, especially amongst female camels, but it is very uncommon, if not altogether absent, in other parts of the Punjab. It is probably due to grazing continually on lana. Where this disease is most prevalent, there is practically nothing but lana grazing. The dachis are kept in this area, whereas the males go to different districts for work and thus get a change of diet. Although cases do occur amongst males, the great majority are

amongst females. These dachis have their fore-legs always shackled; this shackling of the fore-legs may be a contributing cause.

The most prominent symptom is loss of control of the hind-legs with consequent difficulty in sitting down and getting up. When walking, the hind quarters sway from side to side. The camel is usually in poor condition, especially if the disease is of long standing. When hand fed the camel eats well to within a few days of death. The temperature, pulse, breathing, and fæces show nothing abnormal. The eye is bright. In fact, beyond the loss of control of the hind legs the camel appears to be in normal health. The symptoms resemble those of kumree in horses. Examination of the blood revealed nothing. Injection of blood into horses, camels, sheep, buffalo, dogs, rabbits, and guinea pigs did not reproduce the disease.

A variety of drugs (nerve sedatives and stimulants) were tried, but without the slightest effect. Fomentations to the loins, and blisters also had no effect.

Butter from Camel milk. It is usually stated that butter cannot be made from camel's milk, and camelmen assured me that such was a fact.

Three pounds of milk were obtained, and after churning for four hours—about four times as long as from cow's milk—two ounces of butter were obtained.

Surra.

Further experiments were carried out in connection with the treatment of surra in camels. No attempts were made by Commandants of Silladar Camel Corps to treat camels suffering from surra. Captain Wace, Officer in Charge of the Supply and Transport, Derajat Brigade, Dera Ismail Khan, adopted the treatment recommended by me, *viz.*, arsenic alone and a combination of arsenic and soamin, and obtained excellent results.

He has sent me the following details:—Number of camels treated 158: Cured 129; Died under treatment 29; Relapsed *nil*.

These treated camels were worked all through the winter and were favourably reported upon by the Inspecting V.O. Had they not been treated they would have been shot. If the average price of a camel is taken at Rs. 140, Capt. Wace has saved Government Rs. 149 × 129 = Rs. 18,060. He deserves great credit for his zeal. His Veterinary Jamadar, Ghazanfar Ali, must have worked extremely hard, and I hope he will receive some reward for his work. Recognition of his work by Government would encourage Veterinary Assistants in Silladar Camel Corps to attempt the treatment of camels suffering from surra.

Results are given of treatment with (1) Alternate doses of mercury perchloride and chinosol, with one day's interval between each (5 camels). (2) Alternate doses of iodine and soamin, with one day's interval between each (4 camels). (3) Alternate doses of iodine and mercury perchloride with one day's interval between each (2 camels). All of these were unsatisfactory.

A variety of drugs were tried, none of which gave satisfactory results. Up to the present the only drug that gives any satisfactory results is arsenic and its derivatives.

Camel Surra in Ponies.

Three ponies were inoculated with camel surra. Two were under five years of age, the other was about five years old.

No. 1. Inoculated with camel surra, 22nd September, 1914:—Trypanosomes appeared 1st Oct., 1914 (after 8 days): Last appearance of trypanosomes 6th July, 1915 (duration 278 days): Died 8th Feb., 1916 (216 days later).

At the commencement of the disease the paroxysms were frequent; they became gradually less frequent. On the 9th Nov., 1915, the pony showed slight loss of control of the hind legs; this continued till he died. On 31st Jan., 1916, cerebral symptoms developed: the pony kept its head on one side, ate practically nothing, and was incapable of opening the jaws properly. On 1st Feb. he started walking round in a circle, or took a few paces backward and then in a circle. When attempting to drink kept head on one side, and ate very little.

On the 2nd Feb. there was a discharge from the right nostril: he continued going round in a circle—falling down at intervals, till he died on 8th Feb. This pony was in excellent condition on the 31st Jan., 1916, the day that cerebral symptoms developed.

Post-mortem. Pus in right frontal sinus.

No. 2. Inoculated 14th Oct., 1914:—Trypanosomes appeared 22nd Oct., 1914 (after 8 days): Last appearance 18th Oct., 1915 (duration 357 days): Died 10th March, 1916 (144 days later).

At the commencement of the disease the paroxysms were frequent; they became gradually less frequent. On the 8th Feb. the pony showed signs of loss of control of the hind legs; this continued till he died. On the evening of 6th March brain symptoms developed; commenced to walk round in a circle with head turned towards near side. Was off feed. Continued to walk round in a circle, falling down at intervals, till he died on 10th March.

Post-mortem. Right frontal sinus contained a very bad-smelling blood-coloured fluid. This pony was in excellent condition on the evening of 6th March, 1916, four days before he died.

No. 3. Inoculated on 10th Sept., 1915:—Trypanosomes appeared 17th Sept. (after 7 days): Died 22nd Oct., 1915.

The paroxysms were very frequent, the pony got weaker, and death took place 36 days after the appearance of trypanosomes.

Remarks. Contrary to the results obtained by other investigators (who, as far as I am aware, have never recorded cerebral symptoms nor pus in the sinuses from surra), surra does not always produce loss of condition. With regard to the cerebral symptoms, many camels that developed surra at Chakdara last year presented acute cerebral symptoms. In connection with pus in the sinuses, I would draw attention to a disease amongst camels termed by natives kapauli or chalian. This disease is simply pus in the sinuses, and is the cause of many deaths amongst camels. I am inclined to think that this disease is due to surra. I might also mention that amongst camels suffering from surra enlargement and suppuration of the inguinal and prescapular glands is very common. These experiments will have to be repeated on a much larger scale to confirm the results.

Camel Surra in the Goat.

Two goats were inoculated with camel surra on 15th November, 1915. [One died from cœnurus cerebralis on 24th March, 1916. The blood was daily examined but no trypanosomes were observed. On the 14th March two rabbits and two guinea pigs were inoculated with 1 c.c. of blood subcut. direct from this goat. One of the rabbits and both the guinea pigs developed surra.

The other is still alive, and up to the present (March 31st, 1916) has shown no trypanosomes in the peripheral circulation.

Two rabbits and one guinea pig were inoculated subcut. on the 14th March, 1916, with 1 c.c. of blood direct from the goat, both the rabbits and guinea pigs developed surra.

Camel Surra in Sheep.

Three sheep were inoculated with blood from a camel suffering from surra. In two sheep trypanosomes appeared in the peripheral circulation after a period of in-

cubation of ten days; in the third sheep after a period of eleven days. The paroxysm lasted two to four days. The blood of each sheep was daily examined for 115 days but no trypanosomes were again observed. After 115 days the sheep were destroyed—the condition was fair.

(*To be concluded.*)

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1917 :—

J. T. Aitken, Lt.-Col. A.V.C.	£1	1	0
M. Barlow, Bray, Co. Wicklow	1	1	0
F. Bazley, Devizes, Wilts.	2	2	0
D. Bolton, T. Lt.-Col. A.V.C.	1	1	0
E. Brown, Lt.-Col. A.V.C.	1	1	0
F. P. Carter, Bradford, Yorks.	1	1	0
A. F. Castle, Capt. A.V.C.	1	1	0
J. C. Collings, Capt. A.V.C.	1	1	0
P. W. Creagh, Fermoy, Co. Cork	1	1	0
J. C. Hally, Wellington, Somerset	1	1	0
E. G. Haskell, Bury St. Edmund's	1	1	0
R. H. C. Higgins, Capt. A.V.C.	1	1	0
B. Hoadley, W. Hartlepool, Durham	1	1	0
A. Holburn, Congleton, Cheshire	1	1	0
R. H. Holmes, Lt.-Col. A.V.C.	1	1	0
A. S. Lawrie, Maj. A.V.C.	1	1	0
R. G. Linton, Edinburgh	1	1	0
Prof. J. Macqueen, London	1	1	0
J. E. Mills, Caersws, Montgomeryshire	1	1	0
C. Morgan, Dover, Kent	1	1	0
R. B. Palmer, Capt. A.V.C.	1	1	0
F. W. Pawlett, Maj. A.V.C.	1	1	0
Prime & Sons, Norwood	1	1	0
J. P. Railton, Builth Wells, Brecon	1	1	0
A. Renfrew, Broadway, Worcs.	1	1	0
E. Ringer, Leamington Spa	1	1	0
W. Sherriff, Capt. A.V.C.	1	1	0
A. Snodgrass, Strabane, Co. Tyrone	1	1	0
W. P. Stableforth, Colyton, Devon	1	1	0
J W. Sugden, Southminster, Essex	1	1	0
E. Taylor, Col. A.V.S.	1	1	0
F. B. O. Taylor, Stratford-on-Avon	1	1	0
J. S. Walker, Kirkby-Lonsdale	1	1	0
W. C. Watts, Holbeach, Lincs.	1	1	0
Woodger & Broad, Paddington	2	2	0
P. C. Woolston, Bedford	1	1	0
Previously acknowledged	551	13	0
	£591	11	0

ARMY VETERINARY SERVICE

War Office, May 29.

The following have been mentioned in the despatch received by the Secretary of State for War from Field-Marshal Sir Douglas Haig, G.C.B., Commander-in-Chief of the British Armies in France :—

(Dated April 9.)

Temp. Capt. R. C. Allinson; Maj. E. B. Bartlett; Temp. G. T. F. Budge; Capt. T. J. Davis; Temp. Capt. W. Denington; Temp. Capt. J. Forrest; Capt. J Going; Temp. Capt. W. G. Green; Capt. R. A. Gooderidge; Capt. (temp. Maj.) A. Hodgins; Temp. Capt. E. E. Jelbart; Maj. H. Kirby; Maj. F. A. S. Moore; Temp. Capt. C. W. B. Sikes; Temp. Capt. A R. Smythe.

Pte. (actg, Sgt.) H. Baker, SE/1548; Pte. F. A. Fisher, SE/996; Pte. (actg. Staff Sgt.) H. G. Goldsmid, SE/1658; Pte. (actg. Sgt.) G. Longhurst, SE/2775; Pte. (actg. Sgt.) S. Munn, SE/8666; Pte. (actg. Staff Sgt.) W. T. Munson, 529; Pte. (actg. Staff Sgt.) A. Peel 545; Pte. (actg. Sgt.) P. Pink, SE/4276; Pte. (actg. Sgt.) J. J. Scott, SE/2631; Pte. (actg. Sgt) F. W. Smith, SE/4419; Pte. (actg. Sgt.) T. Taylor, SE/5888; Pte. (actg. Sgt.) G. D. W. Thomas, SE/6928; Staff Sgt. E. Viner, SE/2113; Pte. (actg. Sgt.) G. W. Wilkinson, SE/5941.

Capt. C. P. Fisher; Capt. W. Halstead; Capt. P. D. Huston; Capt. J. J. G. Keppel; Capt. R. Moore; Capt. G. E. Oxspring; Capt. T. W. W. Wright.

Capt. G. M. Davey; Capt. J. Southall; Capt. C. W. Townsend, F.R.C.V.S.; Capt. (temp. Maj.) T. D. Young.

AUSTRALIAN A.V.C.

Maj. Henry; Lt.-Col. Matson.

Capt. R. H. N. Fyans; Capt. S. Fletcher; Maj. E. S. James; Maj. L. E. McKenzie; Capt. C. J. M. Walters.

Sgt. D. J. McNaught, 10; Staff Sgt. I. E. Sexty, 128; Sgt. A. J. K. Smith, 131.

CANADIAN A.V.C.

STAFF—Maj. C. E. Edgett; Capt. (temp. Maj.) D. S. Tamblyn; Lt.-Col. J. H. Wilson.

Extracts from *London Gazette*,

WAR OFFICE, WHITEHALL, May 24.

REGULAR FORCES. ARMY VETERINARY CORPS.

To be temp. Lieuts.:—A. H. McDougall, R. A. Murless (May 8).

May 25.

Lieut. to be Capt.:—F. E. Jones (May 14).

May 26.

To be Temp. Lieut.:—J. Cane (May 10).

May 28.

Temp. Capt. S. L. Symons to be actg. Maj. while holding a special appt. (Mar. 8).

Late temp. Lieut. to be temp. Capt.:—O. S. Broadhurst (Apl. 10).

To be temp. Lieut.:—H. S. A. Dunn (May 15).

May 31.

Temp. Lts. to be temp. Capts.:—K. D'A. Sewell (Apl. 26); G. O. R. Grey (May 9).

MEMORANDA.

May 26.

Col. L. J. Blenkinsop, D.S.O., to be temp. Brig.-Gen. while Dir. of Vety. Services (July 26, 1916).

CANADIAN A.V.C.

May 28.

Temp. Lieut. E. Bowler, to be temp. Capt. (Apl. 7, 1916) (substitutsd for *Gazette* notification, Apl. 20, page 3764, incorrectly specifying date as Apl. 4, 1916).

TERRITORIAL FORCE, ARMY VETERINARY CORPS.

May 25.

Capt. J. Abson, F.R.C.V.S., D.S.O., to be actg Major whilst holding the appt. of D.A.D.V.S. (May 11).

May 31.

Lt.-Col. A. H. Lane (Res. of Off.) relinquishes his commission on account of ill-health, contracted on active serv., and to be granted hon. rank of Lt.-Col. (June 1).

The following casualties are reported :—

KILLED—Capt. Maj. W. I. Macauley, A.V.C.
Capt. B. R. Poole, Can. A.V.C., att. Can. Rly. Trps.

DIED—Pte. E. J. Taylor, 20818 (Caterham Valley).
Pte. J. Park, 113472, Can. A.V.C.

OBITUARY.

W. Ingham Macaulay, M.R.C.V.S., T. Maj. A.V.C., A.D.V.S.
Graduated, Lond: Dec., 1905.

Maj. Macaulay's name appears in the War Office list of Killed, under date May 26th.

Prof. von Behring.

Prof. Emil von Behring, the famous Prussian pathologist, died on April 3rd in Germany, at the age of 63 years. Originally an army medical officer, he devoted himself to experimental medicine, in connection with which he became universally known to both medical men and veterinarians. His most notable work in the veterinary field, though its value remains very problematical, was upon the anti-tubercular immunisation of cattle. In human medicine, his name is inseparably linked with the discovery of anti-diphtheritic serum, the proved success of which ensures his place in medical history.

CORRESPONDENCE.

TREATMENT OF EVERSION.

Sir,—It is with interest that I have read Mr. Malloch's remarks and treatment in cases of eversion. I am at present managing my father's practice, he being on active service, and have had a number of these cases, with a good percentage of recoveries. My procedure is, in the first place, to apply plenty of hot water to the part, then treat with solution of Lysol or similar antiseptic, remove the placenta, and apply antiseptic oils, consisting of Ol. Rapii, 38 parts; Ol. Eucalypti, 1 part; and Acid. carbolic, 1 part; then cover the everted portion with a clean sheet steeped in warm antiseptic solution, and replace the part in the usual manner; remove the sheet a few minutes after completing the operation, next place a pessary containing Creosalgen 3%; Iodoform 1 drm. in the part and apply a "West" clamp. After treatment consists of stimulants internally; keeping the clamp clean and applying antiseptic oils externally. Should there be much discharge I use another pessary on the third day. I am quite in accord with Mr. Malloch in that syringing the part frequently does more harm than good, owing to the accumulation of fluid.

Yours faithfully, L. St. Bel Golledge,
Kingston House, Sherborne. Class C Student.

Sir,—On reading Mr. Malloch's letter *re* the above in your issue of the 26th May, I thought it might interest some members if I state the method adopted by me with considerable success.

After first thoroughly cleansing the uterus and removing all fœtal membrane I return in the ordinary way, and insert a pessary containing Salol 2 dr., Iodoform 1 dr., then put on clamp. If a cow I give a sedative, usually chloral, and fix a chain round the back to check straining; in the case of a mare I give chloral or hypo. inj. of morphia.

I have only had 2% of fatal cases in cattle since adopting this method. The pessaries are made by Harkness, Beaumont & Co., Junction Bridge, Edinburgh. I may add that in the case of cattle I place a bench—such as pigs are killed on—under the cow's belly and have her fore legs pulled from under her, she is then in a sloping position, and this greatly facilitates the return of the uterus.

A Country Practitioner.

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡			Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	Sheep Scab. (b)	Out-breaks (a)	Slaughtered. *
Gt. BRITAIN. Week ended May 26		9	9					39	61	4	75	27
Corresponding week in	1916 ...	10	11					52	63	2	123	356
	1915 ...	10	11			1	1	23	46		122	720
	1914 ...	16	16			1	1	25	46	2	117	954
Total for 21 weeks, 1917		268	305			11	21	1376	2926	368	1128	471
Corresponding period in	1916 ...	275	320	1	24	21	62	1332	3103	172	2047	6426
	1915 ...	322	358			13	18	305	699	151	1719	7667
	1914 ...	384	410	11	74	40	87	1235	2216	144	1643	16594

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.
(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked :—
Board of Agriculture and Fisheries, May 29, 1917. Excluding outbreaks in army horses.

I ELAND. Week ended **May 19**	...	...	...	...	...	...	Outbreaks 4	2	4	24
Corresponding Week in 1916 ...	...	...	...	...	...	...	...	4	9	19
1915 ...	...	...	...	...	...	...	1	4	8	41
1914 ...	...	...	3	43	...	...	1	2	...	13
Total for 20 weeks, 1917 ...	2	2	...	...	1	1	22	208	121	840
Corresponding period in 1916 ...	2	6	...	...	...	...	29	211	119	614
1915 ...	1	1	...	...	1	3	18	230	116	700
1914 ...	1	1	73	830	...	...	41	324	98	456

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, May 21, 1917
Note.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection